



02/03/2015

Kit Components

Product code	Description
1702926 1702926DEMO 1702926EDU 1702927	Model 491 Prep Cell Kit

Components:

1610100	Acrylamide
1610245	Bis (N,N'-Methylene-bis-acrylamide)
1610323	Prep Cell Protein Standard
1610700	Ammonium Persulfate
1610794	Tris Electrophoresis Purity Reagent
1610732	10X Tris/Glycine/SDS Buffer
1610801	TEMED

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

1 Identification

- **Product identifier**
- **Trade name:** Acrylamide
- **Catalog or product number:**
1610100, 1610107, 1610103, 1610101, 1610108, 1610107EDU, 9700099, 1610101EDU, 1610113
- **CAS Number:**
79-06-1
- **EC number:**
201-173-7
- **Index number:**
616-003-00-0
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:**
Technical services, customer support
lsg_techserv_us@bio-rad.com
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Hazard(s) identification

- **Classification of the substance or mixture**
Acute Tox. 3 H301 Toxic if swallowed.
Muta. 1B H340 May cause genetic defects.
Carc. 1B H350 May cause cancer.
Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.
Acute Tox. 4 H312 Harmful in contact with skin.
Acute Tox. 4 H332 Harmful if inhaled.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
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Trade name: Acrylamide

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· Hazard pictograms



GHS06 GHS08

· Signal word Danger

· Hazard-determining components of labeling:

acrylamide

· Hazard statements

H301 Toxic if swallowed.

H312+H332 Harmful in contact with skin or if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H340 May cause genetic defects.

H350 May cause cancer.

H361 Suspected of damaging fertility or the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

· Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P280 Wear protective gloves.

P301+P310 If swallowed: Immediately call a poison center/doctor.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Additional information: Contact with acids may cause release of toxic gases

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

* 3 Composition/information on ingredients

· Chemical characterization: Substances

· CAS No. Description:

79-06-1 acrylamide

· Identification number(s):

· EC number: 201-173-7

· Index number: 616-003-00-0

· Additional information: For the wording of the listed risk phrases refer to section 15.

· SVHC

79-06-1 acrylamide

USA

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Trade name: Acrylamide

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4 First-aid measures

- **Description of first aid measures**

- **General information**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

In case of irregular breathing or respiratory arrest provide artificial respiration.

- **After inhalation**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact** Immediately wash with water and soap and rinse thoroughly.

- **After eye contact** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- **After swallowing** Do not induce vomiting; immediately call for medical help.

- **Most important symptoms and effects, both acute and delayed** Breathing difficulty

- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Special hazards arising from the substance or mixture** No further relevant information available.

- **Advice for firefighters**

- **Protective equipment:**

Mount respiratory protective device.

Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.

- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

- **Reference to other sections**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**

Thorough dedusting.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

- **Information about protection against explosions and fires:** Keep respiratory protective device available.

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Trade name: Acrylamide

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- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

79-06-1 acrylamide

PEL ()	0.3 mg/m ³ Skin
REL ()	0.03 mg/m ³ Skin; See Pocket Guide App. A
TLV ()	0.03* mg/m ³ Skin;*inhalable fraction and vapor

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**
Only use chemical-protective gloves with CE-labeling of category III.
Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
Safety glasses
Tightly sealed goggles.

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Trade name: Acrylamide

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9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form: Crystalline

Color: Whitish

· Odor: sulphurous

· Odour threshold: Not determined.

· pH-value: Not applicable.

· Change in condition

Melting point/Melting range: 84-85 °C

Boiling point/Boiling range: 125 °C

· Flash point: Not applicable

· Flammability (solid, gaseous) Product is not flammable.

· Ignition temperature:

Decomposition temperature: Not determined.

· Auto igniting: Not determined.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower: Not determined.

Upper: Not determined.

· Vapor pressure at 20 °C: 0.009 hPa

· Density at 20 °C: 1.03 g/cm³

· Relative density Not determined.

· Vapour density Not applicable.

· Evaporation rate Not applicable.

· Solubility in / Miscibility with

Water at 20 °C: 400 g/l
Fully miscible

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

dynamic: Not applicable.

kinematic: Not applicable.

Organic solvents: 0.0 %

Solids content: 100.0 %

· Other information No further relevant information available.

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Trade name: Acrylamide

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10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** Carbon monoxide

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values for hazardous components per OSHA criteria:**

79-06-1 acrylamide

Oral	LD50	124 mg/kg (rat)
Dermal	LD50	400 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritant effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**
- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)

79-06-1	acrylamide	2A
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· NTP (National Toxicology Program)

79-06-1	acrylamide	R
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· OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

- **Target organs:**
- Skin.
- Eye.
- Respiratory tract.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
- Water danger class 3 (Internal calculation) (Assessment by list): extremely hazardous for water.

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Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

· **Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.· **Other adverse effects** No further relevant information available.

* 13 Disposal considerations

· **Waste treatment methods**· **Recommendation**

Hand over to hazardous waste disposers.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**· **Recommendation:** Disposal must be made according to official regulations.· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

* 14 Transport information

· **UN-Number**· **DOT, ADR, IMDG, IATA**

UN2074

· **UN proper shipping name**· **DOT, IMDG, IATA**· **ADR**

ACRYLAMIDE, SOLID

2074 ACRYLAMIDE SOLID

· **Transport hazard class(es)**· **DOT, ADR, IMDG, IATA**· **Class**· **Label**

6.1 Toxic substances

6.1

· **Packing group**· **DOT, ADR, IMDG, IATA**

III

· **Environmental hazards:**· **Marine pollutant:**

No

· **Special precautions for user**· **Danger code (Kemler):**· **EMS Number:**

Warning: Toxic substances

60

F-A,S-A

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **Transport/Additional information:**· **DOT**· **Remarks:**

ERG 153P Lösung: EmS 6.1-02

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Trade name: Acrylamide

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· UN "Model Regulation":

UN2074; ACRYLAMIDE, SOLID; 6.1; III

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)

- Section 302/304 (40CFR355.30 / 40CFR355.40):

Substance is listed.

- Section 313 (40CFR372.65):

Substance is listed.

- TSCA (Toxic Substances Control Act):

Substance is listed.

- California Proposition 65:

- Chemicals known to cause cancer:

79-06-1 acrylamide

- Developmental Toxicity

79-06-1 acrylamide

- Carcinogenic categories

- EPA (Environmental Protection Agency)

79-06-1 acrylamide

B2

- TLV (Threshold Limit Value established by ACGIH)

79-06-1 acrylamide

A3

- MAK (German Maximum Workplace Concentration)

79-06-1 acrylamide

2

- NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is listed.

- National regulations

- Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- Technical instructions (air):

Class	Share in %
II	50-100

- Water hazard class: Water danger class 3 (Assessment by list): extremely hazardous for water.

- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

USA

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Trade name: Acrylamide

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16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Environmental Health and Safety.

· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

· **Date of preparation / last revision** 02/03/2015 / -

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Acute Tox. 3: Acute toxicity, Hazard Category 3

Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2

Skin Sens. 1: Sensitisation - Skin, Hazard Category 1

Muta. 1B: Germ cell mutagenicity, Hazard Category 1B

Carc. 1B: Carcinogenicity, Hazard Category 1B

Repr. 2: Reproductive toxicity, Hazard Category 2

STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1

· *** Data compared to the previous version altered.**

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1 Identification

- **Product identifier**
- **Trade name:** Bis (N,N'-Methylene-bis-acrylamide)
- **Catalog or product number:**
1610245, 1610201, 1610200, 9700104, 1610201EDU, 9700165, L1610200, L1610201, 4306590
- **CAS Number:**
110-26-9
- **EC number:**
203-750-9
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:**
Technical services, customer support
lsg_techserv_us@bio-rad.com
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Hazard(s) identification

- **Classification of the substance or mixture**
Acute Tox. 3 H301 Toxic if swallowed.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Xn; Harmful
R22: Harmful if swallowed.
- **Information concerning particular hazards for human and environment:** not applicable
- **Classification system:**
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS06

- **Signal word** Danger
- **Hazard-determining components of labeling:**
N,N'-methylenediacrylamide

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USA

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Trade name: Bis (N,N'-Methylene-bis-acrylamide)

(Contd. of page 1)

- **Hazard statements**
H301 Toxic if swallowed.
- **Precautionary statements**
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P301+P310 If swallowed: Immediately call a poison center/doctor.
P321 Specific treatment (see on this label).
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Additional information:** Contact with acids may cause release of toxic gases
- **Emergency overview:**
- **Routes of exposure:** Ingestion
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**
110-26-9 N,N'-methylenediacrylamide
- **Identification number(s):**
- **EC number:** 203-750-9
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

4 First-aid measures

- **Description of first aid measures**
- **General information**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Immediately call a doctor.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.

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Trade name: Bis (N,N'-Methylene-bis-acrylamide)

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- **Advice for firefighters**
- **Protective equipment:** No special measures required.

* 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

* 7 Handling and storage

- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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Trade name: Bis (N,N'-Methylene-bis-acrylamide)

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· Eye protection: Safety glasses

* 9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form: Crystalline

Color: White

· Odor: sulphurous

· Odour threshold: Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range: >300 °C

Boiling point/Boiling range: undetermined

· Flash point: Not applicable

· Flammability (solid, gaseous) Not applicable.

· Ignition temperature:

Decomposition temperature: Not determined.

· Auto igniting: Not determined.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower: Not determined.

Upper: Not determined.

· Vapor pressure: Not determined.

· Density at 20 °C: 0.77 g/cm³

· Relative density Not determined.

· Vapour density Not determined.

· Evaporation rate Not determined.

· Solubility in / Miscibility with

Water at 20 °C: 3 g/l
Fully miscible

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

dynamic: Not determined.

kinematic: Not determined.

Organic solvents: 0.0 %

Solids content: 100.0 %

· Other information No further relevant information available.

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Trade name: Bis (N,N'-Methylene-bis-acrylamide)

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10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:**
No irritant effect.
Irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water.
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

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Trade name: **Bis (N,N'-Methylene-bis-acrylamide)**

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· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**

· **Recommendation**

Hand over to hazardous waste disposers.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**

· **DOT, ADR, ADN, IMDG, IATA**

Void

· **UN proper shipping name**

· **DOT, ADR, ADN, IMDG, IATA**

Void

· **Transport hazard class(es)**

· **DOT, ADR, ADN, IMDG, IATA**

· **Class**

Void

· **Packing group**

· **DOT, ADR, IMDG, IATA**

Void

· **Environmental hazards:**

· **Marine pollutant:**

No

· **Special precautions for user**

Not applicable.

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **UN "Model Regulation":**

-

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

· **Section 302/304 (40CFR355.30 / 40CFR355.40):**

Substance not listed.

· **Section 313 (40CFR372.65):**

Substance is not listed.

· **TSCA (Toxic Substances Control Act):**

Substance is listed.

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Trade name: Bis (N,N'-Methylene-bis-acrylamide)

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· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **National regulations**

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Environmental Health and Safety.

· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

· **Date of preparation / last revision** 02/03/2015 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

Acute Tox. 3: Acute toxicity, Hazard Category 3

· *** Data compared to the previous version altered.**

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

1 Identification

- **Product identifier**
- **Trade name:** Prep Cell Protein Standard
- **Catalog or product number:** 1610323
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:**
Technical services, customer support
lsg_techserv_us@bio-rad.com
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Hazard(s) identification

- **Classification of the substance or mixture**
The product is not classified according to the Globally Harmonized System (GHS).
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** not applicable
- **Information concerning particular hazards for human and environment:**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **Label elements**
- **GHS label elements** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Additional information:** Contact with acids may cause release of toxic gases
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Description:** Mixture of the substances listed below with non-hazardous additions.

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Trade name: Prep Cell Protein Standard

(Contd. of page 1)

· Listing of dangerous and non-hazardous components:

56-81-5	glycerol	35-50%
7732-18-5	water	35-50%

· **Additional information** For the wording of the listed risk phrases refer to section 15.

4 First-aid measures

- **Description of first aid measures**
- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:** Dilute with plenty of water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections**
No dangerous substances are released.
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.

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Trade name: Prep Cell Protein Standard

(Contd. of page 2)

· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

56-81-5 glycerol

PEL () 15* 5** mg/m³
*total dust **respirable fraction

TLV () 10* ppm
*Mist

26628-22-8 sodium azide

REL () Short-term value: C 0.3** mg/m³, C 0.1* ppm
*as HN₃; **as NaN₃; Skin

TLV () Short-term value: C 0.29** mg/m³, C 0.11* ppm
*as HN₃ vapor **as NaN₃

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment**

· **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.

· **Breathing equipment:** Not required.

· **Protection of hands:** Protective gloves.

· **Material of gloves** Synthetic gloves

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:** Safety glasses

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Liquid

Color: Colorless

· **Odor:** Odorless

· **Odour threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range: undetermined

Boiling point/Boiling range: undetermined

· **Flash point:** Not applicable

· **Flammability (solid, gaseous)** Not applicable.

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Trade name: Prep Cell Protein Standard

(Contd. of page 3)

· Ignition temperature:	400 °C
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	0.9 Vol %
Upper:	Not determined.
· Vapor pressure at 20 °C:	23 hPa
· Density:	Not determined
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
· Solvent content:	
Organic solvents:	50.0 %
Water:	49.0 %
· Solids content:	1.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions**
This product contains sodium azide. Sodium azide can react with copper, brass, lead, and solder in piping systems to form explosive compounds of lead azide and copper azide.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
This product contains sodium azide. Sodium azide can react with copper, brass, lead, and solder in piping systems to form explosive compounds of lead azide and copper azide.
- **Hazardous decomposition products:** No dangerous decomposition products known

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Trade name: Prep Cell Protein Standard

(Contd. of page 4)

11 Toxicological information

Information on toxicological effects

Acute toxicity:

Primary irritant effect:

on the skin: No irritant effect.

on the eye: No irritant effect.

Sensitization: No sensitizing effects known.

Additional toxicological information:

The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

Target organs: Not applicable.

12 Ecological information

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Additional ecological information:

General notes: Generally not hazardous for water.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods

Recommendation

Hand over to hazardous waste disposers.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

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Trade name: Prep Cell Protein Standard

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· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· UN-Number	
· DOT, ADR, ADN, IMDG, IATA	Void
· UN proper shipping name	
· DOT, ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· DOT, ADR, ADN, IMDG, IATA	
· Class	Void
· Packing group	
· DOT, ADR, IMDG, IATA	Void
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN "Model Regulation":	-

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)

- **Section 302/304 (40CFR355.30 / 40CFR355.40):**

26628-22-8 sodium azide

- **Section 313 (40CFR372.65):**

26628-22-8 sodium azide

- **TSCA (Toxic Substances Control Act):**

56-81-5 glycerol

26628-22-8 sodium azide

7732-18-5 water

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

- **TLV (Threshold Limit Value established by ACGIH)**

26628-22-8 sodium azide

A4

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Trade name: Prep Cell Protein Standard

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· **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **National regulations**· **Technical instructions (air):**

Class	Share in %
NK	35-50

· **Water hazard class:** Generally not hazardous for water.· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Environmental Health and Safety.· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

· **Date of preparation / last revision** 02/03/2015 / -· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

· *** Data compared to the previous version altered.**

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

1 Identification

- **Product identifier**
- **Trade name:** Ammonium Persulfate
- **Catalog or product number:** 1610700, 1610754, 9700103, 1610700EDU, 1610702, 10042050
- **CAS Number:**
7727-54-0
- **EC number:**
231-786-5
- **Index number:**
016-060-00-6
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:**
Technical services, customer support
lsg_techserv_us@bio-rad.com
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.

2 Hazard(s) identification

- **Classification of the substance or mixture**
Ox. Sol. 3 H272 May intensify fire; oxidizer.
Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Irritant to eyes.
Irritant to skin.
Sensitizer by dermal contact.
Sensitizer by inhalation.
May cause fire.
Irritant to respiratory system.
Irritant to respiratory system and skin.
Xn; Harmful
R22: Harmful if swallowed.

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Trade name: Ammonium Persulfate

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Xi; Irritant

R36/37/38-42/43: Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation and skin contact.

O; Oxidizing

R8: Contact with combustible material may cause fire.

· **Information concerning particular hazards for human and environment:** not applicable· **Classification system:**

The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.

· **Label elements**· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).· **Hazard pictograms**

GHS03 GHS07 GHS08

· **Signal word** Danger· **Hazard-determining components of labeling:**

diammonium peroxodisulphate

· **Hazard statements**

H272 May intensify fire; oxidizer.

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

· **Precautionary statements**

P221 Take any precaution to avoid mixing with combustibles.

P210 Keep away from heat.

P284 Wear respiratory protection.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Additional information:** Contact with acids may cause release of toxic gases· **Emergency overview:**· **Routes of exposure:**

Ingestion

Inhalation

Skin

· **Classification system**· **NFPA ratings (scale 0-4)** The substance possesses oxidizing properties.· **Special Hazards** Oxidizer.· **Other hazards**· **Results of PBT and vPvB assessment**· **PBT:** Not applicable.

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Reviewed on 01/19/2015

Trade name: Ammonium Persulfate

(Contd. of page 2)

· **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**
7727-54-0 diammonium peroxodisulphate
- **Identification number(s):**
- **EC number:** 231-786-5
- **Index number:** 016-060-00-6
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

4 First-aid measures

- **Description of first aid measures**
- **General information**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing** Immediately call a doctor.
- **Most important symptoms and effects, both acute and delayed** Breathing difficulty
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.

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Trade name: Ammonium Persulfate

See Section 13 for disposal information.

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* 7 Handling and storage

- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of dust.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

* 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

· Components with limit values that require monitoring at the workplace:	
7727-54-0 diammonium peroxodisulphate	
TLV ()	0.1 mg/m ³

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
Safety glasses
Tightly sealed goggles.

USA

(Contd. on page 5)

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acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: Ammonium Persulfate

(Contd. of page 4)

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form: Crystalline

Color: White

· Odor: Odorless

· Odour threshold: Not determined.

· pH-value at 20 °C: 1.5

· Change in condition

Melting point/Melting range: <160 °C

Boiling point/Boiling range: undetermined

· Flash point: Not applicable

· Flammability (solid, gaseous) Contact with combustible material may cause fire.

· Ignition temperature:

Decomposition temperature: Not determined.

· Auto igniting: Not determined.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower: Not determined.

Upper: Not determined.

· Vapor pressure: Not applicable.

· Density at 20 °C: 1.982 g/cm³

· Bulk density at 20 °C: 950-1050 kg/m³

· Relative density: Not determined.

· Vapour density: Not applicable.

· Evaporation rate: Not applicable.

· Solubility in / Miscibility with

Water at 20 °C: 559 g/l
Fully miscible

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

dynamic: Not applicable.

kinematic: Not applicable.

Organic solvents: 0.0 %

Solids content: 100.0 %

· Other information: No further relevant information available.

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acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: Ammonium Persulfate

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* 10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

* 11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

- **LD/LC50 values for hazardous components per OSHA criteria:**

7727-54-0 diammonium peroxodisulphate

Oral LD50 820 mg/kg (rat)

- **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.

- **on the eye:** Irritant effect.

- **Sensitization:**

Sensitization possible through inhalation.

Sensitization possible through skin contact.

- **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

- **Target organs:**

Skin.

Eye.

Respiratory tract.

* 12 Ecological information

- **Toxicity**

- **Aquatic toxicity:** No further relevant information available.

- **Persistence and degradability** No further relevant information available.

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water.

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acc. to OSHA HCS

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Reviewed on 01/19/2015

Trade name: Ammonium Persulfate

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Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
 Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**

· **Recommendation**

Hand over to hazardous waste disposers.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**

· **DOT, ADR, IMDG, IATA**

UN1444

· **UN proper shipping name**

· **DOT, IMDG, IATA**

· **ADR**

AMMONIUM PERSULPHATE

1444 AMMONIUM PERSULPHATE

· **Transport hazard class(es)**

· **DOT, ADR, IMDG, IATA**

· **Class**

· **Label**

5.1 Oxidizing substances

5.1

· **Packing group**

· **DOT, ADR, IMDG, IATA**

III

· **Environmental hazards:**

· **Marine pollutant:**

No

· **Special precautions for user**

· **Danger code (Kemler):**

· **EMS Number:**

· **Segregation groups**

Warning: Oxidizing substances

50

F-A,S-Q

Ammonium compounds

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **UN "Model Regulation":**

UN1444, AMMONIUM PERSULPHATE, mixture, 5.1, III

- USA

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: Ammonium Persulfate

(Contd. of page 7)

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)

- Section 302/304 (40CFR355.30 / 40CFR355.40):

Substance not listed.

- Section 313 (40CFR372.65):

Substance is not listed.

- TSCA (Toxic Substances Control Act):

Substance is listed.

- Carcinogenic categories

- EPA (Environmental Protection Agency)

Substance is not listed.

- TLV (Threshold Limit Value established by ACGIH)

Substance is not listed.

- MAK (German Maximum Workplace Concentration)

Substance is not listed.

- NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is not listed.

- National regulations

- Water hazard class: Water hazard class 1 (Assessment by list): slightly hazardous for water.
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Department issuing SDS: Environmental Health and Safety.

- Contact:

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

- Date of preparation / last revision 02/03/2015 / -

- Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Ox. Sol. 3: Oxidising Solids, Hazard Category 3

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Safety Data Sheet
acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: Ammonium Persulfate

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*Acute Tox. 4: Acute toxicity, Hazard Category 4**Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2**Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A**Resp. Sens. 1: Sensitisation - Respirat., Hazard Category 1**Skin Sens. 1: Sensitisation - Skin, Hazard Category 1**STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3**** Data compared to the previous version altered.**

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

1 Identification

- **Product identifier**
- **Trade name:** Tris Electrophoresis Purity Reagent
- **Catalog or product number:** 1610794, 1610723, 1610716, 1610719, 1610719EDU, 1610716EDU, 9702147
- **CAS Number:**
77-86-1
- **EC number:**
201-064-4
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547
(510)741-1000
- **Information department:**
Technical services, customer support
lsg_techserv_us@bio-rad.com
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Hazard(s) identification

- **Classification of the substance or mixture**
Eye Irrit. 2A H319 Causes serious eye irritation.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Irritant to eyes.
Xn; Harmful
R22: Harmful if swallowed.
Xi; Irritant
R36: Irritating to eyes.
- **Information concerning particular hazards for human and environment:** not applicable
- **Classification system:**
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**

GHS07
- **Signal word** Warning

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: Tris Electrophoresis Purity Reagent

(Contd. of page 1)

· **Hazard statements**

H319 Causes serious eye irritation.

· **Precautionary statements**

P280 Wear eye protection / face protection.

P264 Wash thoroughly after handling.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

· **Additional information:** Contact with acids may cause release of toxic gases· **Emergency overview:**· **Routes of exposure:** Ingestion· **Other hazards**· **Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.* **3 Composition/information on ingredients**· **Chemical characterization: Substances**· **CAS No. Description:**

77-86-1 Tris(hydroxymethyl)aminomethane

· **Identification number(s):**· **EC number:** 201-064-4· **Additional information:** For the wording of the listed risk phrases refer to section 15.* **4 First-aid measures**· **Description of first aid measures**· **General information**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation** Supply fresh air; consult doctor in case of complaints.· **After skin contact** Generally the product does not irritate the skin.· **After eye contact** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.· **After swallowing** Immediately call a doctor.· **Most important symptoms and effects, both acute and delayed** No further relevant information available.· **Indication of any immediate medical attention and special treatment needed** No further relevant information available.* **5 Fire-fighting measures**· **Extinguishing media**· **Suitable extinguishing agents**CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.· **Special hazards arising from the substance or mixture** No further relevant information available.· **Advice for firefighters**· **Protective equipment:** Wear self-contained respiratory protective device.

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: Tris Electrophoresis Purity Reagent

(Contd. of page 2)

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:** Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
 - See Section 7 for information on safe handling
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and feed.
 - Immediately remove all soiled and contaminated clothing
 - Wash hands before breaks and at the end of work.
 - Avoid contact with the eyes.
 - Avoid contact with the eyes and skin.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**
 - The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
 - Safety glasses
 - Tightly sealed goggles.

USA

(Contd. on page 4)

Safety Data Sheet

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Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: Tris Electrophoresis Purity Reagent

(Contd. of page 3)

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Crystalline
Color:	Whitish
Odor:	Odorless
Odour threshold:	Not determined.

· pH-value: Not applicable.

· Change in condition

Melting point/Melting range:	171.2 °C
Boiling point/Boiling range:	undetermined

· Flash point: Not applicable

· Flammability (solid, gaseous) Product is not flammable.

· Ignition temperature:

Decomposition temperature: Not determined.

· Auto igniting: Not determined.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

· Vapor pressure: Not applicable.

Density at 20 °C:	0.84 g/cm ³
Relative density	Not determined.
Vapour density	Not applicable.
Evaporation rate	Not applicable.

· Solubility in / Miscibility with Water:

Fully miscible

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

dynamic:	Not applicable.
kinematic:	Not applicable.
Organic solvents:	0.0 %

Solids content: 100.0 %

· Other information No further relevant information available.

10 Stability and reactivity

· Reactivity

· Chemical stability

· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

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Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: Tris Electrophoresis Purity Reagent

(Contd. of page 4)

- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values for hazardous components per OSHA criteria:**

77-86-1 Tris(hydroxymethyl)aminomethane

Oral LD50 5900 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

- **Target organs:** Eye.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Generally not hazardous for water.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Hand over to hazardous waste disposers.

(Contd. on page 6)

USA

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: Tris Electrophoresis Purity Reagent

(Contd. of page 5)

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number	
· DOT, ADR, ADN, IMDG, IATA	Void
· UN proper shipping name	
· DOT, ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· DOT, ADR, ADN, IMDG, IATA	
· Class	Void
· Packing group	
· DOT, ADR, IMDG, IATA	Void
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	-

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)

· **Section 302/304 (40CFR355.30 / 40CFR355.40):**

Substance not listed.

· **Section 313 (40CFR372.65):**

Substance is not listed.

· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: Tris Electrophoresis Purity Reagent

(Contd. of page 6)

· NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is not listed.

· National regulations**· Water hazard class:** Generally not hazardous for water.**· Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Environmental Health and Safety.**· Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

· Date of preparation / last revision 02/03/2015 / -**· Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A

· * Data compared to the previous version altered.

Safety Data Sheet
acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

1 Identification

- **Product identifier**
- **Trade name:** 10X Tris/Glycine/SDS Buffer
- **Catalog or product number:** 1610732, 9701906, 1610772, 1610732EDU, 1610772EDU, 10021723
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:**
Technical services, customer support
lsg_techserv_us@bio-rad.com
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Hazard(s) identification

- **Classification of the substance or mixture**
The product is not classified according to the Globally Harmonized System (GHS).
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** not applicable
- **Information concerning particular hazards for human and environment:**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **Label elements**
- **GHS label elements** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Additional information:** Contact with acids may cause release of toxic gases
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Description:** Mixture of the substances listed below with non-hazardous additions.

(Contd. on page 2)

USA

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: 10X Tris/Glycine/SDS Buffer

(Contd. of page 1)

· Listing of dangerous and non-hazardous components:

56-40-6	glycine		10-20%
77-86-1	Tris(hydroxymethyl)aminomethane	Xn R22 Xi R36	2.5-5%
7732-18-5	water		50-100%

· **Additional information** For the wording of the listed risk phrases refer to section 15.

4 First-aid measures

- **Description of first aid measures**
- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections**
No dangerous substances are released.
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: 10X Tris/Glycine/SDS Buffer

(Contd. of page 2)

- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
Synthetic gloves
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

Form:	Liquid
Color:	Light yellow
Odor:	Odorless
Odour threshold:	Not determined.
- **pH-value at 20 °C:** 8.3
- **Change in condition**

Melting point/Melting range:	undetermined
Boiling point/Boiling range:	undetermined
- **Flash point:** Not applicable
- **Flammability (solid, gaseous)** Not applicable.

(Contd. on page 4)

USA

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: 10X Tris/Glycine/SDS Buffer

(Contd. of page 3)

· Ignition temperature:	
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure at 20 °C:	23 hPa
· Density at 20 °C:	0.989 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
· Solvent content:	
Organic solvents:	0.0 %
Water:	81.4 %
· Solids content:	18.6 %
· Other information	No further relevant information available.

* 10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

* 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values for hazardous components per OSHA criteria:**

56-40-6 glycine

Oral	LD50	7930 mg/kg (rat)
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(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: 10X Tris/Glycine/SDS Buffer

(Contd. of page 4)

Dermal LD50 5200 mg/kg (rat)

77-86-1 Tris(hydroxymethyl)aminomethane

Oral LD50 5900 mg/kg (rat)

· **Primary irritant effect:**· **on the skin:** No irritant effect.· **on the eye:** Irritant effect.· **Sensitization:** No sensitizing effects known.· **Additional toxicological information:**

The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· **Carcinogenic categories**· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Target organs:** Not applicable.* **12 Ecological information**· **Toxicity**· **Aquatic toxicity:** No further relevant information available.· **Persistence and degradability** No further relevant information available.· **Bioaccumulative potential** No further relevant information available.· **Mobility in soil** No further relevant information available.· **Additional ecological information:**· **General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· **Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.· **Other adverse effects** No further relevant information available.* **13 Disposal considerations**· **Waste treatment methods**· **Recommendation**

Hand over to hazardous waste disposers.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**· **Recommendation:** Disposal must be made according to official regulations.

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: 10X Tris/Glycine/SDS Buffer

(Contd. of page 5)

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· UN-Number	
· DOT, ADR, ADN, IMDG, IATA	Void
· UN proper shipping name	
· DOT, ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· DOT, ADR, ADN, IMDG, IATA	
· Class	Void
· Packing group	
· DOT, ADR, IMDG, IATA	Void
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN "Model Regulation":	-

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)

- **Section 302/304 (40CFR355.30 / 40CFR355.40):**

None of the ingredients is listed.

- **Section 313 (40CFR372.65):**

None of the ingredients is listed.

- **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

- **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

- **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

Trade name: 10X Tris/Glycine/SDS Buffer

(Contd. of page 6)

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **National regulations**

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Environmental Health and Safety.

· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

· **Date of preparation / last revision** 02/03/2015 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

· *** Data compared to the previous version altered.**

Safety Data Sheet
acc. to OSHA HCS

Printing date 02/03/2015

Reviewed on 01/19/2015

1 Identification

- **Product identifier**
- **Trade name:** TEMED
- **Catalog or product number:** 1610801, 1610800, 9700106, 1610800EDU, 1610801EDU, 10040443, 1610802, 10041629
- **CAS Number:**
110-18-9
- **EC number:**
203-744-6
- **Index number:**
612-103-00-3
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:**
Technical services, customer support
lsg_techserv_us@bio-rad.com
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.

2 Hazard(s) identification

- **Classification of the substance or mixture**
Flam. Liq. 2 H225 Highly flammable liquid and vapor.
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H332 Harmful if inhaled.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Corrosive.
Flammable.
May cause irreversible eye damage.
C; Corrosive
R34: Causes burns.
Xn; Harmful
R20/22: Harmful by inhalation and if swallowed.
F; Highly flammable
R11: Highly flammable.
- **Information concerning particular hazards for human and environment:** not applicable

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· **Classification system:**

The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.

· **Label elements**

· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

GHS02 GHS05 GHS07

· **Signal word** Danger· **Hazard-determining components of labeling:**

N,N,N',N'-tetramethylethylenediamine

· **Hazard statements**

H225 Highly flammable liquid and vapor.

H302+H332 Harmful if swallowed or if inhaled.

H314 Causes severe skin burns and eye damage.

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Additional information:** Contact with acids may cause release of toxic gases

· **Emergency overview:**· **Routes of exposure:**

Ingestion

Inhalation

· **Other hazards**· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**· **CAS No. Description:**

110-18-9 N,N,N',N'-tetramethylethylenediamine

· **Identification number(s):**

· **EC number:** 203-744-6

· **Index number:** 612-103-00-3

· **Additional information:** For the wording of the listed risk phrases refer to section 15.

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4 First-aid measures

- **Description of first aid measures**

- **General information**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- **After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact** Immediately wash with water and soap and rinse thoroughly.

- **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.

- **After swallowing**

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

- **Most important symptoms and effects, both acute and delayed** Breathing difficulty

- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Special hazards arising from the substance or mixture** No further relevant information available.

- **Advice for firefighters**

- **Protective equipment:** Mount respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment (See section 8). Keep unprotected persons away.

Wear protective clothing.

- **Environmental precautions:**

Prevent seepage into sewage system, workpits and cellars.

Dilute with plenty of water.

- **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

- **Reference to other sections**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.

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- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

* 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
Safety glasses
Tightly sealed goggles.

* 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

Form:	Liquid
Color:	Light yellow
Odor:	Amine-like
Odour threshold:	Not determined.
- **pH-value:** Not determined.

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· Change in condition	
Melting point/Melting range:	undetermined
Boiling point/Boiling range:	118 °C
· Flash point:	≤ 21 °C
· Flammability (solid, gaseous)	Not applicable.
· Ignition temperature:	
Decomposition temperature:	Not determined.
· Auto igniting:	Not determined.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	0.98 Vol %
Upper:	9.08 Vol %
· Vapor pressure:	Not determined.
· Density at 20 °C:	0.78 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
Organic solvents:	100.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

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* 11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values for hazardous components per OSHA criteria:

110-18-9 N,N,N',N'-tetramethylethylenediamine

Oral LD50 1580 mg/kg (rat)

Dermal LD50 5390 mg/kg (rbt)

· Primary irritant effect:

· on the skin:

Strong caustic effect on skin and mucous membranes.

Caustic effect on skin and mucous membranes.

· on the eye:

Strong caustic effect.

Irritant effect.

· Sensitization: No sensitizing effects known.

· Additional toxicological information:

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

Substance is not listed.

· NTP (National Toxicology Program)

Substance is not listed.

· OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

· Target organs:

Skin.

Respiratory tract.

* 12 Ecological information

· Toxicity

· Aquatic toxicity: No further relevant information available.

· Persistence and degradability: No further relevant information available.

· Bioaccumulative potential: No further relevant information available.

· Mobility in soil: No further relevant information available.

· Additional ecological information:

· General notes:

Generally not hazardous for water.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

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· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**· **Recommendation**

Hand over to hazardous waste disposers.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**· **Recommendation:** Disposal must be made according to official regulations.· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**· **DOT, ADR, IMDG, IATA**

UN2372

· **UN proper shipping name**· **DOT, IATA**

1,2-DI-(DIMETHYLAMINO) ETHANE)

· **ADR**

2372 1,2-DI-(DIMETHYLAMINO) ETHANE

· **IMDG**

1,2-DI-(DIMETHYLAMINO) ETHANE

· **Transport hazard class(es)**· **DOT, ADR, IMDG, IATA**· **Class**

3 Flammable liquids

· **Label**

3

· **Packing group**· **DOT, ADR, IMDG, IATA**

II

· **Environmental hazards:**· **Marine pollutant:**

No

· **Special precautions for user**

Warning: Flammable liquids

· **Danger code (Kemler):**

33

· **EMS Number:**

F-E,S-D

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **UN "Model Regulation":**

UN2372, 1,2-DI-(DIMETHYLAMINO) ETHANE, 3, II

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**· **Section 302/304 (40CFR355.30 / 40CFR355.40):**

Substance not listed.

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· **Section 313 (40CFR372.65):**

Substance is not listed.

· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **Carcinogenic categories**· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **National regulations**· **Technical instructions (air):**

Class	Share in %
NK	50-100

· **Water hazard class:** Generally not hazardous for water.· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Environmental Health and Safety.· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

· **Date of preparation / last revision** 02/03/2015 / -· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Flam. Liq. 2: Flammable liquids, Hazard Category 2

Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B

· *** Data compared to the previous version altered.**